1: McGee E-5 (1894-1895)1898 NU31 Seri NU31

137 time of need, and it yields abundant seeds, consumed by birds, small animals, and men. About all of the permanent waters not invaded by white men and the white man's stock there are brakes of cane or carrizal (*Phragmites communis* ?); the jointed stems are half an inch to an inch in thickness and 8 to 25 feet in height; the seeds are edible, while the stems form the material for balsas and afford shafts for arrows, harpoons, fire-sticks, etc., and the silica-coated joints may be used for incising tough tissues.

The coasts of Seriland, both insular and mainland, are skirted by zones of exceptionally luxuriant shrubbery, maintained chiefly by fog moisture. Along the mountainous parts of the coast the zone is narrow and indefinite, but on the plains portions it extends inland for several miles with gradually fading characters; this is especially true in the southern portion of Desierto Encinas, where the fog effects may be observed in the vegetation 12 or 15 miles from the coast. Most of the fog fed species are identical with those of the interior, though the shrubs are more luxuriant and are otherwise distinctive in habit. On the Tiburon side of gale-swept El Infiernillo, and to some extent along other parts of the coast, some of these shrubs (notably *Maytenus phyllanthroides*) grow in dense hedge-like or mat-like masses, often yards in extent and permanently modeled by the wind in graceful dune-like shapes. Somewhat farther inland the flatter coastwise zones of Tiburon are rather thickly studded with shrubby clumps from 6 inches to 2 feet high, made up of *Frankenia palmeri* with half a dozen minor communals; while still farther inland follows the prevailing Sonoran flora of mesquite, scrubby paloverde, and chaparral (*Celtis pallida*), etc, only a little more luxuriant than the normal.

Throughout Seriland proper, and especially in the interior valleys of Tiburon, grasses are more prevalent than in other portions of the Sonoran province, their abundance doubtless being due to the rarity of graminiverous animals during recent centuries.

FAUNA

136 Considered collectively, the fauna of the Sonoran province is measurably distinctive (though less so than the flora), especially in the habits of the organisms. The prevailing animals, like the plants of extraneous type, evidently represent genera and species developed under more humid conditions and adjusted to the arid province through a long-continued and severe process of adaptation; and no fundamentally distinct orders or types comparable with the cacti and torotes of the vegetal realm are known. The prime requisite of animal life in the province is ability to dispense with drinking, either habitually or for long intervals, and to maintain structure and function in the heated air despite the exceptionally small consumption of water; the second requisite is ability to cooperate in the marvelously complete solidarity of animal and vegetal life characteristic of subdesert regions. No

1: McGee E-5 (1894-1895)1898 NU31 Seri NU31

systematic studies have been made of special structures in the animal bodies adapting them to retention of liquids, either by storage (as in the stomach of the camel) or by diminished evaporation, though the prevalence of practically nonperspiring mammals, scale-covered reptiles, and chitin-coated insects suggests the selection, if not the development, of the fitter genera and species for the peculiar environment. Much more conspicuous are the characters connected with cooperation in the ever severe but never eliminative strife for existence in the subdesert solidarity; the mammals are either exceptionally swift like the antelope, exceptionally strong like the local lion, exceptionally pugnacious and prolific like the peccary, or exceptionally capable of subsisting on waterless sierras like the bura and mountain goat; the reptiles are either exceptionally swift like the rainbow-hued lizards, exceptionally armed like the sluggish horned toads, exceptionally venomous like the rattlesnake, or exceptionally repulsive, if not poisonous, like the Gila monster; even the arthropodates avoid the mean, and are exceptionally swift, exceptionally protective in form and coloring, exceptionally venomous like the tarantula and scorpion and centipede, or exceptionally intelligent like the farmer ant and the tarantula-hawk; while there is apparently a considerable class of insects completely dependent on the cooperation of plants for the perpetuation of their kind, including the yucca moth and (undescribed) cactus beetle. Among plants the intense individuality (which is the obverse of the enforced solidarity) is expressed in thorns and heavily lacquered seeds and toxic principles; among animals it is expressed by chitinous armament, as well as by fleetness and fangs and deadly venom.

The larger land animals of Seriland proper are the mountain goat in the higher sierras, the bura (or mule-deer) and the white-tail deer on the mid-height plains and larger alluvial fans, with the antelope on the lower and drier expanses. Associated with these are the ubiquitous coyote, a puma, a jaguar of much local repute which roams the higher rocky sites, and a peccary ranging from the coast over the alluvial fans and mid-height plains of the mainland (though it is apparently absent from Tiburon). Of the smaller mammals the hare (or jack-rabbit) and rabbit are most conspicuous, while a long-tail nocturnal squirrel abounds, its burrows and tunnels penetrating the plains of finer debris so abundantly as to render these plains, especially on Tiburon, impassable for horses and nearly so for men. The California quail and the small Sonoran dove are fairly common; a moderate number of small birds haunt the more humid belts, and there is a due proportion of Mexican eagles and hawks of two or three forms, with still more numerous vultures. Ants abound, dominating the insect life, while wasps and spiders, with various flies and midges, gather about the vital colonies of the drier plains and swarm in the moister belts. Horned toads and various lizards—bright-colored and swift, or earth-tinted and sluggish—are fairly abundant, while black-tail rattlesnakes

1: McGee E-5 (1894-1895)1898 NU31 Seri NU31

● 136 haunt the more luxuriant vegetation of fog zones, permanent waters and cienegas. On the whole, the land fauna of Serriland is much like that of the province in general, though the various forms of life are less abundant than the average, since all (except the abounding squirrel) are sought for food by the omnivorous Seri; and the distribution, even when relatively abundant, is woefully sparse, as befits the scant and scattered vegetal foundation for the animal life.

Strongly contrasted with the meagerness of the land fauna is the redundant aquatic fauna of that portion of the gulf washing the shores of Serriland. Tiburon island is named from the sharks, said by some explorers to have been seen by thousands along its coasts; these voracious feeders find ample food in literal shoals and swarms of smaller fishes; a not inconsiderable number of whales have survived the early fisheries (one, estimated at 80 feet in length, was stranded in Rada Ballena about 1887); while schools of porpoises play about Boca Infierno and elsewhere, making easy prey of slower swimmers caught in the tide-rips and gale-swept breakers. Proportionately abundant and varied is the crustacean life; littoral mollusks cling to the ledges exposed along all the rocky coast stretches, and the entire beach from Punta Antigualla to Punta Ygnacio is banded by a practically continuous bank of wave-cast molluscan shells, the shell-drift being often yards in width and many inches in depth. Common crabs abound in many of the coves, and a large lobster-like crab frequently comes up from deeper bights and bottoms; oysters attach themselves to rocks and to the roots of shrubby trees skirting protected bays like Rada Ballena, while clams are numerous in all broad mud-flats, such as those of Laguna la Cruz; and the pearl oyster was fished for centuries toward Punta Tepopa, until the ferocity of the Seri put an end to the industry. Especially abundant and large are the green turtles on which the Seri chiefly subsist, leaving the shells scattered along the shore and about rancherias in hundreds; while two land tortoises (*Gopherus agassizii* and *Cinosternum sonoranse*) range about the margins of the lagoons, and one of these is alleged to enter the water freely.

The abundance of water-fowl is commensurate with that of the submarine life. The pelecin leads the avifauna in prominence if not in actual numbers, breeding on Isla Tasmo (Pelican island), and periodically patrolling the whole of Bahia Kunkaak and El Infiernillo in lines and platoons of military regularity; gulls are always in sight, and the cormorant is common; while different ducks haunt several of the inlets, and the shores are promenaded by curlews, snipes, and other waders. There is a corresponding wealth of plankton, which at low spring tide with offshore gale covers acres of shallow littoral with squirming or inert but always slimy life, the substratum for that of higher order; and jellyfish and echinoids are cast up by nearly every wave, while at night the surf rolls up the smooth strands in shimmering lines of phosphorescent light. On the whole, the aquatic life teems in tropic luxuriance

1: McGee E-5 (1894-1895)1898 NU31 Seri NU31

and more than ordinary littoral variety; for the waters of the gulf are warmed by radiation and conduction from its sun-parched basin, while the concentrated tides distribute and stimulate the species and keep the vital streams astir. 136

Local Features

Considered as a tribal habitat, Seriland comprises four subdivisions of measurably distinct character, viz, (1) the broad desert bounding the territory on the east; (2) the mountainous zone of Sierra Seri; (3) Tiburon island and the neighboring islets; and (4) the navigable straits and bays contiguous to island and mainland. 133 137

1. So far as its marginal portions are concerned, Desierto Encinas is a typical valley of the Sonoran province, sparsely dotted with vital colonies of the prevailing type and variegated by the exceptionally luxuriant mesquite forests of the Bacuache and Sonora fans; but the interior of the valley is rendered distinct by the fact that it lies near, if not below, the level of the sea.[1] The central feature is Playa Noriega—a film of brackish water for a few days after each considerable semiannual freshet, a sheet of saline mud for a few weeks later, and for the greater part of the year a salt-crusted sheet 20 square miles in area, level as a floor and unimpressionable as a brick pavement. The playa is rimmed by dunes 10 to 40 feet in height, and about these and along the arroyos which occasionally break into it there is some aggregation of salt-enduring shrubs, evidently sustained in part by the semiannual freshet with its meager vapors and fogs. Outside this rim the surface is exceptionally broken; low dunes and irregularly wandering banks of soft and dust fine sand are interspersed with meandering salt flats much like the central playa, ranging from a few feet in width and a few yards in length up to mappable dimensions, as in the lesser playa lying east of the great one; and many of the dust-banks are honeycombed with squirrel burrows. This annulus of broken surface is narrow on the west, soon passing into okatilla scrub and then

[1] The expedition of 1895, during which Seriland was surveyed, was not provided with apparatus for accurate vertical measurement, and hence altitudes were only approximately determined. The determinations by Mr Johnson, who executed the topographic surveys, indicated that even the lowest part of the valley is somewhat above sea-level; but other facts indicate that it actually lies below the level of the waters of the gulf, and forms a miniature boundary-sea of Colorado desert (in southern California): in the first place the central playa, which is undoubtedly flooded occasionally if not semiannually, does not embouch into, and has no channels extending toward, the sea; in the second place it is highly saline; again, the alluvial fans of Rio Bacuache and (especially) of Rio Sonora are so placed as to intercept and dam the trough occupied by Laguna la Cruz in its southern portion and Playa Noriega in its northern portion; concordantly, the detail configuration of the coast indicates marine transgression, apparently due to secular submergence of the land—though the abundant marine shells of recent species toward the valley-bottom attest recent displacement of the sea. On the whole, the facts seem to indicate that, during recent geologic times, the lower portion of this valley was a shallow gulf extending northward (and probably also southward) from the eastern limit of Bahia Kino; that the importation and deposition of sediment, chiefly by Rio Sonora, outran the secular subsidence of the land so far as to displace the waters of the gulf in its central portion and to separate the northern arm from the sea; and that the waters of this northern arm were subsequently evaporated, disappearing finally in the central playa in which local inflow and evaporation are balanced by the usual mechanism of interior basins. [126]

1: McGee E-5 (1894-1895)1898 NU31 Seri NU31

133 inner margin of the shelf is a sea-cliff, usually 30 to 50 feet high, of which the lower half is commonly granite and the upper half unconsolidated and recent-looking mechanical debris collected by sheetflood erosion. Sometimes the granite of the subterrane is replaced by volcanics; sometimes ancient and firmly cemented talus deposits separate the superficial mantle from the subterrane, as shown in the lower part of plate v; sometimes the line of sheetflood planation passes below tide-level, when the waves beat against the unconsolidated deposits in a deep embayment; sometimes the sharply defined planation surface ends abruptly at the sides of subranges or buttes shooting upward in the abrupt slopes characteristic of the sierra proper; yet this 18-mile stretch of coast is a nearly continuous revelation of the structure of sheetflood-carved plains and of modern marine transgression. The debris of the combined processes forms an abundant and varied assortment of bowlders, cobbles, and pebbles, whence the inhabitants readily derive their simple implements without need for studied forethought or manual cunning.

The long sand-spit terminating in Punta Miguel and the shorter one terminating in Punta Arena are the product of geologically recent wave building, and consist of irregular series of V-bars, backed by lagoon-like basins and enclosing considerable bodies of brine in the central portions; and the bars and basins become successively higher outward, in such wise as to attest the secular subsidence of this coast. [361] [487] Several jacales are located on the higher portion of the southern sand-spit, midway between Punta Granita and Punta Miguel, while foot-paths traverse the flat and skirt the coast. Toward the terminal portion of the spit the sand is blown into hummocks, held by clumps of salt-enduring and sand-proof shrubbery; but there are no rancherías here, despite the fact that it is a natural point of embarkation—doubtless because no Seri structure could withstand the sand-drifting gales and storm inundations of this exposed spot. The more protected lagoons behind the outer bars harbor abundant waterfowl, within bowshot of shrub-clumps and dunes well adapted to the concealment of hunters, while the mud-flats open to the tide abound in clams and other edible things. The features of the Punta Miguel sand-spit are repeated with variations along the eastern shore of El Infiernillo; and [361] Seri jacales, evidently designed for temporary occupancy, occur here and there, usually on higher banks above reach of the severer storms.

3. Tiburon island itself is apparently the chosen home of the Seri—[131] a habitat to which the mainland tract is at once a dependency, an alternative refuge, and a circumvallation. Its dominant range, Sierra Kunkaak, mates Sierra Seri in its essential features, though the rocks are for the greater part ordinarily obdurate eruptives rather than exceptionally obdurate granites, as in the mainland sierra; accordingly the range is somewhat lower and broader, while the sheetflood sculpture, with its sharp transition into precipitous cliffs, is somewhat less trench-

1: McGee E-5 (1894-1895)1898 NU31 Seri NU31

133 fortable haven at high tide, it is mostly mud-flat and sand-waste at extreme low tide—a condition which explains the stranding of an 80-foot whale in this treacherous harbor about 1887. The rada is between two and three miles in length. It abounds in marine life of
● 136 kinds preferring quieter waters: clams are plentiful in its mud-flats, a sponge lines portions of the bottom toward its inner extremity, oysters cluster numerously on bowlders and on the mangrove-like roots and trunks of a large shrub along the outer shore, and various fishes find refuge here from the fierce currents and the hungry sharks and porpoises of the open strait; these and other creatures form food for innumerable waders and other water-fowl that seek shelter in the quiet bay, which is still further protected by salt-enduring shrubbery on the bars of the point and by the shrubby thickets and wave-cast banks and wind-built dunes on the mainland side.

The combination of conditions renders this portion of the Tiburon
361 coast the optimum habitat of the Seri Indians. There are, indeed, no houses or other traces of permanent habitation on Punta Tormenta itself, which is not only swept by gales but must sometimes be inundated by gale-driven waters at high spring tide; but at the inner end of the long sand-spit, and also on the mainland opposite the outer portion of Rada Ballena, there are extensive and well-kept rancherias, capacious enough to accommodate comfortably thirty or forty Seri families, i. e., 150 or 200 persons. Toward its landward end the sand-spit is built
311 largely of pebbles and cobbles, of which thousands of tons are adapted to industrial use; sea-food is practically unlimited and is readily taken; water-fowl literally crowd the protected rada within arrow-shot of natural cover; the outer slope of the bar is admirably suited for landing and embarking balsas in calm weather, while the bay is an ideal harbor for the portable craft, and the shrub-grown shores give unlimited opportunity for concealing them when not in use; the dunes and banks are high enough to protect the low jacales from storm-winds, while the abundant sponges and turtle-shells afford material for thatching and shingling the more exposed walls and roofs; and finally,
[312] it is but a favorite distance (about 4 miles) to the permanent fresh water of Tinaja Anita. From this Seri metropolis well-trod trails
487 radiate toward all other parts of the island; the best-beaten leads to the tinaja, sending branches into all the neighboring gorges, in which game is sometimes taken; next best-worn is the trail laid across Sierra Kunkaak to strike Arroyo Carrizal mid-length of its permanently wet portion; others pass northward to rancherias at different points on the coast, and still another skirts the coast southward by several smaller rancherias to the considerable jacal collection near Punta Narragansett—this, like other longshore routes, having alternative trails, the evanescent fair-weather one following the beach, while the permanent path threads the thorn-set thickets marking the crest of the sea-cliff or cuts across the longer salients. The Narragansett rancheria is

1: McGee E-5 (1894-1895)1898 NU31 Seri NU31

hours tumultuous waves come and go sporadically, while about the mile-wide boca the choppy sea sometimes takes the form of spire-like jets, spurting 5 or 10 feet high and breaking into aigrettes of glittering spray in most unwaterlike and wholly indescribable fashion. Dewey described the strait as "unsafe for navigation by any except the smallest class of vessels"; it is safe, indeed, only for portable and indestructible craft like the Seri balsas, which may be put off or carried ashore at will by craftsmen willing to wait for wind and tide, and unpossessed of impediments of a sort to be injured by wetting. Of such an environment the balsa is a natural product.

The adjunct islets of Seriland are miniatures of Tiburon in all essential respects, save that they are without fresh water. The largest is San Esteban, a somewhat complex butte rising sharply from the waters in a nearly continuous sea-cliff recording vigorous work by storms and tides; it is occasionally visited by the Seri, chiefly in search of water-fowl and eggs. The most important of the series in Seri economy and mythology is Isla Tasnę, off the mouth of Bahia Kino; it is a rugged butte some 600 feet high, rising in wave-cut cliffs on the sea side and pedimented by low spits and banks of sand toward the lea; the sand-banks are literally flocked with pelicans, while other fowl cover the flatter ledges and crowd the crannies of the pinnacle. Isla Turner is a somewhat smaller and still more rugged butte, bounded on both sides by precipitous cliffs, while Roca Foca is merely a great rock shelving upward from the storm-swept waters off the most exposed angle of Tiburon; in the crannies of the former birds nest abundantly, while the lower ledges of both are haunted by seals. Isla Patos, north of Tiburon, is a breeding-place for different water-fowl, and is especially noted as a refuge for ducks; it, too, is for the most part a rocky butte, with a sandy shelf at the eastern base. Beyond San Esteban lies the similar but smaller Isla San Lorenzo, while Isla Salsipuedes and a few other islets stretch thence northward half way to the southern point of Isla Angel de la Guarda, the second-largest island of the gulf. San Lorenzo and the smaller islets are occasionally visited by the Seri, partly for a mineral pigment used in face-painting, partly in quest of game; and they sometimes push on to the larger island to enjoy its fairly abundant game, including the easily taken iguana, amid the ruins of an ancient culture apparently akin to that of southern Mexico. Even the most frequented islets, Tasnę and Patos, can be reached only by crossing miles of open sea; but in their way the Seri are as canny navigators as they are skilful boat-builders—it is their habit to hug the shore in threatening weather, to await wind and tide for hours or days together, to set out on distant journeys only when all conditions favor, and in emergency to seize inspiration from the storm like the vikings of old, and bend supernormal power to the control of their craft.

Summarily, the prevailing features of Seriland may be said to be

1: McGee E-5 (1894-1895)1898 NU31 Seri NU31

224 semiceremonial collective chase. The fleet but wary antelope, the pugnacious peccary, the wandering puma and jaguar, and the mountain sheep of the rocky fastnesses, are among the favorite objects of this style of chase; while the larger land birds and some of the water-fowl are taken in similar fashion.

The smaller land game comprises a tortoise or two, all the local

[009]

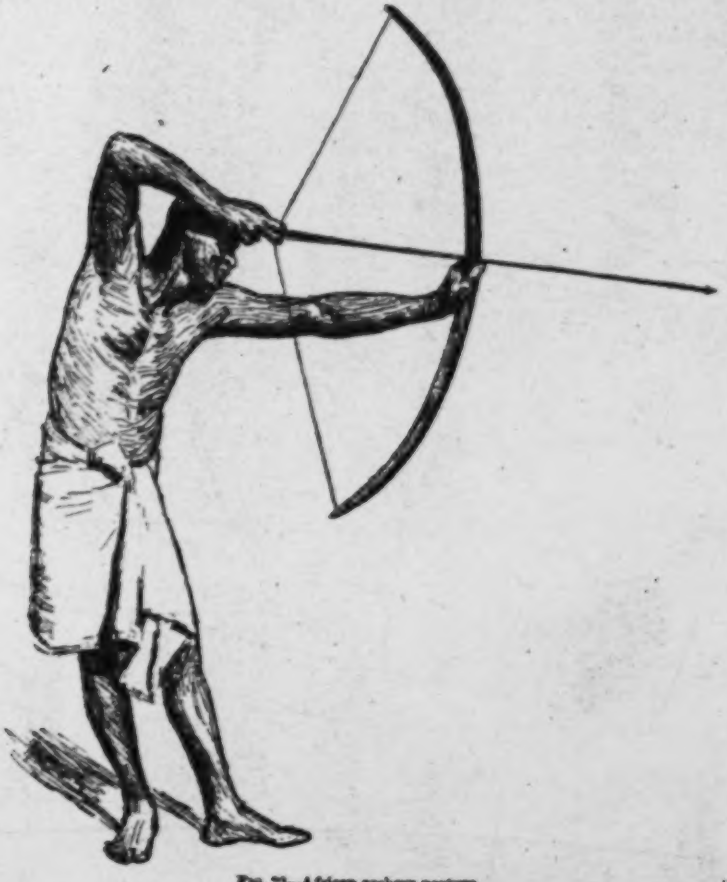

FIG. 22.—African archery posture.

snakes and lizards, and a good many insects, besides various birds, including hawks and owls, as well as the eaters of seeds and insects. The crow and vulture are also classed as edible, though they are rare in Seriland, probably because of the effective scavengering of the province by its human residents. It is a significant fact that the

[136]
[262]

1: McGee E-5 (1894-1895)1898 NU31 Seri NU31

smaller rodents, especially the long-tail nocturnal squirrel, are excluded from the Seri menu by a rigidly observed tabu of undiscovered meaning. A general consequence of this tabu is readily observed on entering Seriland; there is a notable rarity of the serpents, the high-colored and swift efts, and the logy lizards and dull phrynosomas so abundant in neighboring deserts, as well as of song birds and their nests; and this dearth is coupled with a still more notable abundance of the rodents, which have increased and multiplied throughout Seriland so abundantly that their burrows honeycomb hundreds of square miles of territory. A special consequence of the tabu is found in the fact that the myriad squirrel tunnels have rendered much of the territory impassable for horses and nearly so for pedestrians, and have thereby served to repel invaders and enable the jealous tribesmen to protect their principality against the hated alien. Seriland and the Seri are remarkable for illustrations of the interdependence between a primitive folk and their environment; but none of the relations are more striking than that exemplified by the timid nocturnal rodent, which, protected by a faith, has not only risen to the leading place in the local fauna, but has rewarded its protectors by protecting their territory for centuries.

In both the collective and the strategic chase, constant advantage is taken of weakness and incapacity, whether temporary or permanent, of the prospective quarry; so that diseased and wounded as well as sluggish and stupid animals are eliminated. The effect of this policy on the fauna is undoubtedly to extinguish the less capable species and to stimulate and improve the more capable; i. e., the presence of the human factor merely intensifies the bitter struggle for existence in which the subhuman things of this desert province are engaged. At the same time, the entrance of the human folk into the struggle characteristic of subhuman species serves to bar them from one of the most helpful ways to the advancement of their kind—i. e., the way leading through cotoleration with animals to perfected zoöculture. The most avidly sought weaklings in the Seri chase are the helpless young, and the heavily gravid dams which are pursued and rent to fragments with a horrid fury doubtless reflecting the practical certainty of capture and the exceptionally succulent tidbits afforded by the fetal flesh; naturally the cruel custom reacts on habitual thought in such wise that the very sight of pregnancy or travail or newborn helplessness awakens slumbering blood-thirst and impels to ferocious slaughter. To such custom and deep-planted mental habit may be ascribed some of the most shocking barbarities in the history of Seri rapine, tragedies too terrible for repetition save in bated breath of survivors, yet explaining the utter horror in which the Seri marauder is held on his own frontier. At the same time the hunting custom and the mental habit explain the blindness of the Seri to the rudiments of zoöculture, and clarify their intolerance of all animal associates, save the sly coyote that habitually

7: Marroquin E-5 (1955) 1957 NU31 Seri NU31

In general, the Seris have a healthy appearance; the most frequent complaints are gastro-intestinal and visual defects due to avitaminosis. It is very possible that given the difficult living conditions resulting from the desert environment, a rigorous selective process among the newborn takes place so that only those who possess exceptional physical qualities survive. This explains why the majority of them retain the physical characteristics described by Hardy more than a century ago: "the Indians of Isla Tiburón are tall, healthy and well built". 164 147 142

In spite of attempts at education, the Seris do not practice the elemental rules of hygiene; their way of life, neglecting this aspect, contributes to increase the unhealthy foci which exist in the places where they have established themselves. 515 751

Dwellings.—The Seris retain many vestiges of their nomadic life, among them the hut which serves as their living quarters; many of them are simple provisional arrangements for sheltering themselves from wind and sun, and they bear no relationship to the stability and durability of our dwellings. The Seri hut was made to meet the necessities of a nomadic people who had no reason to spend much time nor work on making a dwelling which would only be used for a season (one, two or at the most three months). Nevertheless, some innovations have been introduced in the last 20 years, so that we must distinguish between two types of houses. The primitive model consists of a series of scrub pine arches interwoven with branches from the same shrub almost totally covered by foliage, tortoise shells, *zacate*, etc., with only a small hole in one of its ends as an entrance (this type of hut is the same that McGee saw in 1894 when the Seris still led a nomadic life). 342 [221] [177]

In the new model more resistent woods are used, like *sahueso*, *torote*, etc., and poles, between which is laid a layer mud. The house is rectangular, without windows; with only one entrance, but always larger than the entrance to the brush hut. Other models would have to be added to these two, due to the incorporation and utilization of tents made in the United States which some U. S. tourists or the Society of Friends have given them. The tent is used as permanent living quarters; or sometimes combined with branches to cover the primitive type huts. 342 178 [177]

Domestic Animals.—The Seris are very fond of domestic animals like the dog, cat, and finally, the chicken. For all practical purposes these animals live together with the family; they rest on the piles of rags and sand which serve the Indians as beds; lick the plates and cooking utensils; dirty the house; increase the household fauna with their fleas and other vermin thus contributing to create and unhealthy atmosphere in the home. 231 [136]

Problems of Intoxication.—Their dealings with the fish buyers, in whose stores are sold beer, *mezcal* and *tequila*, has turned them to the consumption of these drinks. The Seri drinks liquor in an uncontrolled 273 [275]

Whitaker E-5 (1953-1955)1962 NU31 Seri NU31

I

INTRODUCTION

[13] [12] [361] [221] [46] The territory discussed in this paper is somewhat larger than the historical area occupied by the Seris. While Seri settlements are limited today to a quite narrow range, the Tiburon Island and the coast of Sonora immediately adjacent to it, they are familiar with a far larger region, owing to their periodic trips, either on their own after fish, turtle and game or, occasionally, in the temporary employ of the Mexican fish-traders and even farmers. The further away from Tiburon perimeter, the lesser their familiarity with a locality.

The area is limited by Hermosillo in the east, Punta Penasco and Porto Libertad in the north, and Nogales in the south, and finally it includes also the coast of Baja California which the Seris sometimes visit. It also includes all of the islands within that area, Tiburon, Patos, Rasa, Angel de la Guarda, San Lorenzo and San Esteban.

137 With very minor variations this entire region belongs properly to the Sonoran desert. *Palo Verde, Palo Fierro, Pithaya, Mesquite, Cholla, Sahuaro,* prickly pear, elephant tree and creosote bush are the basic plants. Among the vertebrates, 136 such forms as the Sonoran bighorn, deer, cougar, jumping rat, badger, coyote, skunk, rattlesnake, sidewinder and Gila Monster are most conspicuous and diagnostic. Among the birds are the roadrunner, the raven, as well as many pelagic or littoral birds, the pelican and cormorant among them.

132 The region is one of very low rainfall, limited to the hot summer months, in some places occuring only a few times in a year. Winters are chilly and dry with persistent winds and dust, with the temperature falling down, on rare occasion, to just above the freezing point. Summers are intensely hot, with daily temperatures usually over 100 and the water temperature of the sea along the shore not infrequently as much as 85 degrees. There are great differences between diurnal and nocturnal temperatures, very much influencing the desert life.

134 Within this region there are several different ecological zones or perhaps sub-zones, varying from the alkaline flats like Playa Noriega, and the alkali-and salt-permeated soils of Desemboque to the more bountiful slopes of the mountains and the irrigated mud-flats around Hermosillo.

121 For the sake of distinction, I have selected several of the typical localities or zones as a point of reference either because of their ecological distinctions or because of their significance as a landmark, readily delineating a peculiar habitat. Personally I am familiar only with some of the

III

MAMMALS

Scientific	Common Name
Antrozous pallidus	Pallid bat
Bassariscus astutus	Ringtail cat (Cacomistle)
Spilogale gracilis	Spotted skunk
Taxidea taxus	Badger
Urocyon cinereoargenteus or Vulpes macrotis	Grey fox or kit fox
Canis latrans	Coyote
Felis concolor	Mountain Lion.
Felis onca	Jaguar
Felis eyra	Juguarundi
Zalophus californianus	California sea lion
Dipodomys sp.?	Kangaroo rat
Erethizon dorsatum	Porcupine
Lepus californicus	Blacktailed rabbit
Sylvilagus audubonii	Desert cottontail
Pecari angulatus	Peccary
Odocoileus hemionus	Mule Deer
Ovis canadensis	Bighorn
Eschrichtius glaucus	California grey whale
Orcinus rectipinna	Killer whale
Tursiops gillii	Bottlenosed dolphin

Identification here has been obtained largely with an aid of field guides or by mentioning a colloquial local name of the mammal in Spanish. All these were later checked by Dr. Robert T. Orr of the California Academy of Sciences. While there is no doubt of the identity of the most common forms, such as peccary or sea-lion, there are also several of the identifications which can't be certain either because of inadequate line drawings or lack of specimens, either alive at a distance or even parts of them. In this somewhat dubious category are Ringtail cat, Jaguarundi and the Killer whale.

On the other hand, there is no doubt as to the identity of the following: Pacific pale bat, badger, bighorn, coyote, kangaroo rat, blacktail rabbit, cottontail jackrabbit, deer and dolphin. Live, free or captive individuals, or part of them, such as horns, hide or skulls were available.

Economic Uses

Food: Only 6 out of 21 species for which information is available are used today as food. Three more were mentioned as "eaten in the past" and one more as "possibly eaten in the past." Since the oldest of the informants who provided this data, Miguel Barnett, is a man in his fifties (and it is he who talked most often about the animals "eaten in the past but not now") we may surmise that these were part of the Seri diet 25-45 years ago, that is between 1910-1930.

Five species are important as a supplementary source of food: the bighorn, the deer, peccary and both species of rabbits. Some, the deer especially, are considered to be delicacies. The sixth species is the badger but it appears neither important nor frequently killed. I saw one badger captured by José Juan Moreno. The animal was tied to the pole, and kept as a pet, fed on fish, snake and

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Coyote figures out probably

as an important and perhaps disreputable figure in the mythology although nothing but scraps and bits of information suggest this. It is possible that there is actually a taboo on eating this animal or perhaps it is so disreputable that eating its flesh would put a gourmant in an inferior position.

How important is the Seri mammalian diet is hard to tell. It certainly looms more heavily during the winter, because in the cool season hunting is easier than during the heat of the summer and in fact this is when most of it is done by the ardent hunters. Too, winter subjects the Seris to greater hazards and is apt to increase their dependence on the desert resources over that during the summer, even if these resources are scantier at that time.

To all of these animals one should add the semi-wild burros running about the extensive Mexican rancherias. The Indians poach on them frequently using their fire arms, usually the .22 caliber rifles. In any case, it appears that during the summer when the field work was carried out, the mammalian diet figures quite lightly on the Seri table.

Food preparation: Very little is done in the preparation of the mammalian meat. All that I could observe was the boiling of it in hot water spiced with salt. The Indians were saying that in order to have the meat of a peccary, deer or bighorn ready to eat one must boil it 2-3 hours. The same procedure is followed with the meat of the burros. In contrast to this, as shall be seen later, fish are boiled as well as roasted while the turtles are also dried and salted. Preparation of meat is done by women, certainly at least in the encampments when they are present.

Food preferences: Some of the Seri food preferences have already been mentioned. At the top of the list as the desirables are the peccary, the deer, the bighorn and the blacktail jackrabbit; at the bottom is the badger, whose meat "is not much good." There is also preference by sex. Females of both the bighorn and peccary are preferred over the males "because they do not have the bad odor like the males." This sort of favoritism also occurs among the Mexicans. However, the Indians did not elaborate beyond this point.

Other economic uses: Apart from meat, hides are also used. The hides of the deer, bighorn and peccary had been used for sleeping mats although this matter has been expressed in the past tense. Miguel Barnett also suggested that the bighorn hides had been used for clothing by the Indians in the past—but he neglected to say how long ago. During Kroeber's stays, no Seris went about in the animal or bird (pelican) skins but earlier when McGee visited them they went about in these simple garments. Judging then by Miguel's memory, the use of the bighorn hide for clothing must be pushed back to the period of World War I or even earlier.[1]

[1] Miguel Barnett indicated that the "fur" of the bighorn had once been worn for the cold season "but not now."

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BIRDS

Scientific	Common Name
Pelecanus erythrorhynchos	White pelican
Pelecanus occidentalis	Brown pelican
Phalacrocorax	Cormorant
Fregata magnificens	Frigate bird Man-O'War Bird
Casmerodius albus *Leucophoyx thula*	American egret or Snowy egret
Botaurus lentiginosus	American bittern
Plegadis chihi	White-faced ibis
?	Duck, species?
Cathartes aura	Turkey vulture
Coragyps atratus	Black vulture
Aquila chrysaetos	Golden eagle
Haliaetus leucocephalus	Bald eagle
Pandion haliaetus	Osprey
Odonthophorinae	Quail
Numenius sp.	Curlew
Scolopacidae	Sandpiper
Catoptrophorus semipalmatus	Willet
Larus occidentalis	Western gull
Larus heermanni	Heermann gull
Columbidae	Dove
Geococcyx californianus	Roadrunner
Tyto alba	Barn owl
Trochilidae	Hummingbird
Centurus uropygialis	Gila woodpecker most likely
Hirundinae	Swallow
Corvus corax	Raven

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Identifications had been mine from sightings and from Blake's *Birds of Mexico* and a few other field manuals and then were checked by Dr. R. T. Orr. In many cases, especially where sightings were from geat distances or actual specimens were not available, the exact identification is uncertain and this fact should be indicated here. In several instances here are several possibilities and these are as follows:

Cormorant—Here there are three possibilities according to Dr. Orr:
1. Double crested cormorant (*Ph. auritus albociliatus*)
2. Mexican cormorant (*Ph. Olivaceus mexicanus*)
3. Pelagic cormorant (*Ph. Pelagicus resplendens*)

Egret—Two possibilities:
1. American egret (*Casmerodius albus*)
2. Snowy egret (*Leucophoa thula*)

Duck—Identification impossible since no specimens were seen. It is supposedly black in color. Undoubtedly it is a duck, but which sp?

Eagle—Probably either Golden eagle or the Bald eagle. The size militates against any other bird of prey.

Quail—No identification beyond the family possible

Curlew—Dr. Orr suggests that it is either the Long Billed Curlew (*Numenius americanus sp?*) or Hudsonian Curlew (*N. hudsonicus*)

Sand-piper—One of many possible species in the area

Sea-gull—Most gulls I have seen are Heermahn gulls (*Larus heermanni*) but some were the Western gull (*L. occidentalis*). These are the two common summer species. But there are also others and, according to Dr. Orr, also there are several others wintering in the region. So, Seris' generalized comments on the seagulls may well apply to several species.

Dove—Seri information applies to several species common in the area.

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IV

BIRDS

●136 128 Woodpecker—There are several species in the area but Gila woodpecker (*Centrurus uropygialis*) is certainly one of them.

Hummingbird—Unspecified species, one of several occurring in the area according to Dr. Orr.

Economic Uses

262 Such use as had been made of the birds is largely in the form of an addition to the diet. Reading McGee, one gets the impression that the importance of the birds in the Seri diet, in contrast to the marine animals of all description, has declined greatly. We do know that in the past various birds and, most especially, the seagulls and the pelicans represented a significant item. But today out of the basic list of 24 species, only six has been reported as eaten and all, with an exception of the duck, in the past tense. The duck *[825] evidently is the only bird which the Seri consider really fit to eat and yet, even here, there is temporary avoidance. Moreno told me that this bird "we eat only when we visit the island (Isla Patos). [223] [252] But we do not eat it in September because it is too lean. We like it in December when it is fat. We then kill it at night with stones. It is roasted."[1]

All other birds were reported as eaten only in the past and this has been expressed more or less as follows: sea-gull eaten a few years ago, cormorant 8-10 years ago, pelicans 30-35 years ago. This would mean that the pelicans had been discarded as food, at least according to the official Seri version, in the early twenties, before Kroeber's visit. 183 But the Seri disclaimers on the subject of the bird diet are not entirely correct and reflect less the total rejection and more only low esteem in which these birds are held. 262 For I have seen myself the sea-gull and the pelican eaten on few occasions when times were tough, and the [261] food supply was non-existent, owing to the choppy *[825] and windy seas. The Seris caught in the act of cooking the meagre flesh of the pelican or the seagull were obviously apologetic.

262 It is interesting that some of the birds present in the area, the quail or the woodpeckers, are not eaten although these birds figure prominently in the diet of some of the other groups. It may well be that the Seris consider them too small to bother.

[252] As far as I could find out, eggs of only two species of birds, the sea-gull and the heron, are collected, boiled and eaten. But the eggs of the

[1] His statement requires some explanation. There is no taboo on eating duck but the bird does not occur in Desemboque or any other place known to the Seris, with the exception of Isla Patos. Here these birds winter, arriving in September and arrive worn out and lean, to recoup the fat, a few months later. The Seri unfamiliarity with their eggs is another indication that the birds come to Isla Patos only for the winter. [136] *[825]

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V

REPTILES AND AMPHIBIANS

Scientific	Common Name
Lizards	
Phrynosoma platyrhinos goodei	Horned toad
Callisaurus draconoides inusitatus	Gridiron-tailed lizard
Cryptaphytus wislizeni	Common leopard lizard
Cnemidophorus sacki	Spotted race runner
Cnemidophorus tigris aethiops	Race runner
Sauromalus obesus townsendi	Northern chuckawalla
Sauromalus varius	Chuckawalla
Dipsosaurus dorsalis sonoriensis	Northern crested lizard
Heloderma suspectum	Gila monster
Uta ornata linearis	Uta
Uta stansburiana steinegeri	Striped ground uta
Sceloporus magister	Fence lizard
Coleonyx variegatus sonoriensis	Variegated ground gecko
Xantusia vigilis	Desert night lizard
Snakes	
Crotalus cerastes cercobombus	Side winder
Crotalus atrox	Western diamondback
Micruroides euryxanthus	Coral snake
Coluber flagellum frenatus	Red racer
Coluber flagellum piceus	Black whipsnake
Salvadora hexalrspis deserticola	Patch nose snake
Trimorphodon lambda	Lyre snake
Turtles	
Gopherus agassiz	Agassiz' desert tortoise
Sp?	Loggerhead
Sp?	
Amphibians	
Bufo alvarius	Desert toad

*These two are color varieties of the same species.

Reptile Identification

With the exception of the marine turtles, all species had been identified from preserved specimens either by myself or by Dr. R. Zweifel, Dr. C. M. Bogert, and Mrs. Hecht from the American Museum of Natural History, who also checked my identifications. There is then no question of dubious identification. But circumstantial evidence suggests that belief in the mildness of the coral snake bite, to themselves at least, may well be influenced by the proliferation of the false coral snakes in the area. Mrs. Hecht lists the following of these as likely to occur in the area:

Lampropeltis nelsoni
Lampropeltis pyromelana
Rhinocheilus lecontei antoni
Chionactis occipitalis organica
Chionactis occipitalis palarorostris
Chilomeniscus cinctus

These snakes are very similar to the coral snakes and may well fool most observers, unless they know the differences in the color pattern. Unfortunately, I have not found any of them; there-

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V

REPTILES AND AMPHIBIANS

fore it was impossible to check the Seris' ability to distinguish between these.

As for the marine turtles, there are several possible species in the area. There is no mistake about the loggerhead. I have seen one carapace and bones taken at Campo Vivora, while with the Seris. The others could be any two of the several species common in the Gulf.

Economic Uses

In 1956 I published data concerning economic exploitation of the reptiles by the Seris which need correction. Eleven species out of 25 had been reported as used economically. Additional work done in 1955 and after the completion of the MS. indicated a much higher percentage: 17 species out of 26 are used. Thus the percentage increases from 44% to 65%. The percentage of the species actually used will probably rise with additional field work because some of the informants are disinclined to admit eating certain animals or will simply say, "these had been eaten in the past but not now." However, close inspection and observation often contradict these statements.

The list of species reported as eaten is as follows:

Turtles and tortoises: all species
Snakes: both racers, patch nosed snake and both rattlesnakes
Lizards: both chuckawallas, Gila monster, race runner, northern crested lizard

This listing shows how much dependent are the Seris on the desert habitat for food. Even today, with all the available ready-made manufactured food or imported food from the *tienda*, they gather evidently most of the common reptiles to increase their menu.

Of the species in the list, only two, both smaller species of sea turtles, figure as really important items. McGee believed that here was by far the most important part of the Seri menu, with the marine birds running second.* Now, the importance of the sea turtles has declined, no doubt through a variety of outside influences. I doubt (on the basis of my observation) if altogether it comes to more than 10% of their total diet. The turtles had been replaced as number one food by the fish (with the introduction of hook and line fishing). But anther factor evidently is the depletion of the turtle population. The third species, the huge loggerhead, is so rare that during the entire summer of 1953, only one of them had been harpooned and that at Camp Vivora away from Desemboque. The two smaller species have also become very rare and hardly ever show up near the village. They can be taken on more distant expedi-

*Eggs of the turtles are considered a delicacy, especially of the smaller of the two. The Seris say that the loggerhead has been eaten once but now almost never, because it became so rare.

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VI

FISHES

Scientific	Common Name
● 136 *Stereolepis gigas*	
Myctetoperca jordani	
Cynoscion macdonaldi	
Epinephalus analogus	
Trachinotus paitensis	
Verrunculus polylepis	
Myrichthys tigrinus	
Gymnothorax castaneus	Moray
Bairdiella icistius	
Anchovia macrolepidota	
Cynoscion parvipinnis	
Mugil sp.	
Cetengraulis mysticetus	
Lythrulon flaviguttatum	Flounder?
Paraladbrax maculato fasciatus	
Pareques viola	
Sphoeroides annulatus	
Anisotremus davidsonii	
Girella simplicidens	
Abudefduf saxatilis	
Gobiesox pinniger	
Hypsoblennius gentilis rickettsi	
Gillichthys seta	
Scorpaena sonoras	
Malacoctenus zonifer	
Cypselurus sp. or Fodiator acutus	Flying fish
Neothunnus albacares	Tuna
Ogilbia sp.	
Lutjanus argentiventris	
Conodon serrifer	
Manta birostris	Horned manta
Urolophus halleri	Sting ray
Mustelus lunulatus	
Shark undet.	
Shark undet.	
Shark undet.	Dogfish?
Shark undet. A.	
Shark undet. B.	
Shark undet. C.	
Sphyrna	
Galeocerdo cuvieri	

136 128 The largest number of specimens were identified from preserved specimens by Dr. W. I. Follett of the California Academy of Sciences. This included all smaller fishes. But the largest were determined solely from the well-known vernacular names. The large fishes of the Gulf are well-known and have established local names among the Mestizos. These names are also much in use among the Seris. In several instances, however, it was impossible to determine the species of animal. In such cases, no scientific identification has been made. but their distinct traits were drawn from the Seri comments about them. their natural history, behaviour and ecology. Seris' clear-cut recognition of many of these features as applied to the fishes makes most such differentiations fairly easy. *[825]

* 825 Out of 42 species in the list, nine are sharks. There are, of course, many more species of sharks in the Gulf. But Seri recognition of nine speaks pointedly of their interest in the fishes.

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Scientific	Common Name
● 136 *Octopus bimaculatus*	Two spotted octopus
Tetibranchiata	Sea-hare
Ischnochiton Magdalenensis	Gulf Chiton
Ischnochiton laevigatus	Chiton
Codakia distinguenda	Clam
Cardium consors	Cockle
Laevicardium elatum	Giant Cockle
Carditamera affinis	Ruffled clam
Acmaea dalliana	Limpet
Crucibulum spinosum	Spiry Limpet
Chione undatella	Frilled chione
Chione californiensis	California chione
Pteria peruviana	Wing shell
Isognomon chemnitzianus	Pouch shell
Volsella capax	Horse mussel
Crepidula squama	Boat shell
Olivella dama	Olive shell
Cypraea annettae	Annetta's cowry
Tegula rugosa	Turban shell
Conus regularis	Cone shell
Phyllonotus erythrostomus	Pink-mouthed Murex
Turritella broderipiana	August shell
Polinices reclusiana	Southern moon-shell
Phallium abbreviatum	
Chlamys subnodosa	Noded scallop
Atrina maura	Pen shell
Naicula pacifica	
Turbo (Callopoma) fluctuosa	Turban shell
Solenostira pallida	Top shell
Cerithium stercusmuscarum	Spindle
Knefastia funiculata	Spindle
Neritina luteofasciatus	Nerite
Columbella fuscata	Dove shell
Trivia radians	Coffee bean
Tellina rufescens	Tellen shell
Ficus ventricosus	Fig shell
Nioche bistrionico	?

136 128 [126] While most specimens were identified from live material collected in tide-pools and kept in buckets as long as they lasted, some dead shells had also been used, especially those from the kitchen-middens rather numerous in the immediate Desemboque area.

By far most of the species had been identified by Dr. J. P. E. Morrison of the United States National Museum. To these I added a few identifications of my own, while Dr. Grace Pickford of the Osborn Laboratories, Yale University, identified the octopus and Dr. Rudolf Stohler of the University of California identified the chitons.

Economy

* 825 A very considerable proportion of the molluscs is used by the Seris in various ways. The tabulation will present the data much more clearly than could be done in a discussion.

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X

INSECTS AND ARACHNOIDS

Scientific

136 COLEOPTERA
CINCINDELIDAE
Megacephala
Cicindela carthagena coloscana
Cicindela lemniscata
Cicindela californica brevihamata
Cicindela californica mojavi
CARABIDAE
Chlaenius orbus
Calosoma prominens
HISTERIDAE
Saprinus discoidalis
HYDROPHILIDAE
Hydrophilus insularis
ELATERIDAE
Chalcolepidius smaragdinus
Melanotus cribricollis
Heristonotus sp.
MELOIDAE
Meloidae-gen? sp?
CLERIDAE
Cymatodera sp. A.
Cymatodera sp. B.
OEDEMERIDAE
Oxacis sp.
BUPRESTIDAE
Polycesta volasco
Hippomelas sp.
DERMESTIDAE
Dermestes maculatus
TENEBRIONIDAE
Eleodes sp.
Asidina confluens
Cryptoglossa verrucosa
Sterriphanus punctatus
Edrotes ventricosa
Glypotus sp.
SCARABAEIDAE
Trox suberosus
Diplotaxis knausi
Cyclocephala longula
Anoplognatha dunnianus
Ligyrus gibbosus
Strategus
Scarabaeidae, gen? sp?
CERAMBYCIDAE
Monilema sp.
Anoplus prolixus
Anoplus
Derobrachus geminatus
Achryson surinamum
Acanthoderus peninsularis
BOSTRYCHIDAE
Apatides fortis
CURCULIONIDAE
Expagoderus sp.
ORTHOPTERA
Acheta assimilis
Eremopedes bilineatus
Insara covillae
Clematodes larreae
Periplaneta americana
Arenivaga sp. nov.
Ascocnia integra
Diapheromera calcarata
Stagomantis limbata
Stagomantis californica

HEMIPTERA
Rhytidolomia sayi
Lethaeocerus dolpontei
Ranatra thoracicus
Trinotoma rubida
Leptocoreus sp.
Reduviidae, gen? sp?
Hemalocoris minutus
HOMOPTERA
Descreprota sp.
Aconalonia sp.
FULGORIDAE
Scolopsella reticulata
DIPTERA
Eras? argyrocoma?
Hermetia sp.
Stratiomyidae
NEUROPTERA
Paruthaclisia hageni
Scotoleon congener
HYMENOPTERA
Chlorion aerarius
Hemisia sp.
Bee
Ptiloglossa mariensis
Dasymutilla kingi
Dasymutilla magna
Photopis sp.
Pepsis sp.
LEPIDOPTERA
Ascia sevata
Danaus gilippus strigosus
Agraulis vanillae
Amblyscirtes sp.
Phlegethontius sexta?
Sphingidae, gen? sp?
Sphingidae larva
Erebus odora
ARANEIDA
Artema atlanta
Syspira eclectica
Mecaenerus bivittatus
Latrodectus mactans
Aphonopelma
SCORPIONIDA
Hadrurus hirsutus
SOLPUGIDA
Eremoax calezievensis
MYRIAPODA
Scolopendra malkini
Orthorus sp.
ACARINA
Acarina, gen? sp?
IXODOIDERA
Ixodidae, gen? sp?

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IX

MISCELLANEOUS

Scientific	Common Name
ANNELIDA	
Annelid worm (tube)	
POLYCHAETA	
Eurythoe	Stinging worm
ECHINODERMATA	
Heliaster sp.	Star fish
Holothurioides	Sea cucumber
Encope grandis	Sand dollar
Echinometra vanbrutti	Regular sea urchin
COELESTERATA	
Anthozoa	Sea-anemone
Medusa	Jelly-fish
PORIFERA	
Porifera	Sponge

All these miscellaneous animals are grouped together and discussed together simply because only few species from each group are represented and any generalized comments are not reliable.

The following individuals identified the material. Annelid worm (from tube only)—J. E. P. Morrison, U.S. National Museum.

Sea-urchins — Elisabeth Deichman, Harvard University.

Remainder—Borys Malkin

Taxonomy

With an exception of the sponge, all of the forms listed here are considered animals and not plants. The criterion is movement and when questioned for reasons the informants invariably replied "this is an animal because it moves." It applies equally to the jelly-fish and the *Echinoderms*. The *Annelid tubular worm* is also considered an animal and its shell is instantly recognized as an animal shell. This is surely owing to the movement of the worm in and out of the shell, although the worm does not move with the shell, being imbedded on rocks.

The sponge, on the other hand, was said to "stay on rocks for 5-6 years. It does not walk. It is an alga or plant, not an animal. There are several different kinds, different in color." Thus the minutest sort of movement is shown again to be the basic criterion for the distinction between animals and plants.

Sexing

The Seris know nothing about sex differences in these groups. Of course, several of these beasts are hermaphroditic and self-fertilizing, and there are no visible differences. But in any case the informants simply didn't know what the differences between the sexes are.

Food

No knowledge.

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*825 out during or after rains. The Red mite indeed is a habitual water lover and it does come out after rains in the desert. Actually, probably far greater numbers of insects are associated with the rains, and, of course, there are tremendous flights of insects to the lights following a great downpour but somehow the informants didn't seem to have associated this phenomenon or perhaps the matter eluded my questioning.

In some instances, the Indians indicated where the insects may be found during cold season. *Asica*, *Danaus*, *Agraulis* and *Amblycirtes*, all of them *Lepidoptera*, are supposed to spend their cold season in an inactive state "in the caves in the mountains," a most dubious proposition indeed. The *Hydrophilus* water beetle, on the other hand, "goes underground" for the cold—another invention. Finally the bees are active all year around but their "work" of honey gathering is limited to the hot season.

But what is most important, the scantiness of the insect sample should be kept in mind and any further work may undermine the conclusions suggested here.

●136 *825 Even more dubious are the conclusions reached concerning the Seris' knowledge of the distribution of insects. Not only the sample represents but a tiny fragment of the Sonoran insect fauna, which even in the impoverished Seriland must number many thousands—at least 3-4,000 for the *Coleoptera* alone, a most conservative estimate. Not only our own knowledge of the existing forms in the area is most limited, but we know even less of their distribution from place to place, from one ecological zone to another. The best that we may do is to guess the probable distribution of some forms on the basis of what we do know of their ecological preferences. As for the remainder, especially the strong fliers, we may assume that they occur everywhere within the area, unless there is special reason to believe otherwise. However, these special preferences, when they are known and exist, are of greater significance in the selection of specialized niches and host rather than in the overall distribution pattern.

*825 The 25 localities in the charts as will be remembered have been selected because they represent either important landmarks or because they represent a specific type of habitat to which different faunal elements are restricted.

An explanation of the chart may not be amiss. 1/1 Species for which no distribution symbols are indicated are those which the informants simply didn't know. On the other hand, those that show up in practically every square are those which the Seris covered with a blanket statement like "found all over the world . . ." or "found all over the world except in . . ." etc.

From the very first glance at the chart it is obvious that the greatest number of species are ascribed simply to the localties the Indians know best and where they spend most time: Desemboque, Porto Kino, Buena Vista, Tiburon and the mountains back of Desemboque. One would be also tempted to include San Esteban island in this

[P.50B] 1/[See category 116 - pp66-68 - Analyst.]

VIII

CRUSTACEA

Scientific	Common Name
Cirripedia	Barnacle
Axius vivesi	Mud-shrimp
Leptodius occidentalis	
Microphyrus platicoma	
Speleophorus schmitti	
Petrolisthus armatus	
Callinectes arcuatus	
Glyptoxanthus meandricus	
Pilumnus tournoudi	

All animals in this group are considered live animals—and not plants. This interestingly includes the barnacle. The only way one may account for this is probably the Seris' observation of the cracked barnacles and of the moving flesh inside. Barnacles growing on the marine turtles are also classed as animals, though of a different kind than the barnacles growing on rocks or on the mangroves. They are called *piojos de cahuama*, literally, turtle lice.

The Seris regard *Glyptoxanthus* and *Pilumnus* as the same kind of animal. *Pilumnus* is considered to be merely a large specimen and "maybe an adult," the other *Pilumnus* "is young." When questioned about the reason for the identity the informants pointed out the hairiness of both crabs.

On the other hand, although *Spelenophorus* and *Microphyrus* have the same Seri name, they are considered two different species.

Economy

Crustaceans play little role in the Seri diet. Very few are eaten at all and when they are, the amounts are insignificant and they are considered an inferior sort of food. The informants denied that they have eaten any of them in recent years, but allowed that two species, *Callinectes* and *Axius*, had been part of their diet in the past, although how long ago they didn't specify. There is no doubt, however, that in time of frequent sub-famines, the Indians resort to these lowly creatures.

In addition to this, *Microphyrus* had been mentioned as a fish bait. It is possible that in a pinch other forms are also so used. Finally, the most frequent function that the crustaceans play in the Seri life is as objects of play for the boys who spear them with the miniature two-pronged "puieron."

Sexing

For three species of the crustaceans the Seris indicated distinction differences between the sexes. In the two crabs, *Callinectes* and *Leptodius*, the males have narrow center plate while the female's center plate is wide, which in fact is a well-known sex difference in crab. In *Glyptoxanthus* and *Lep-*

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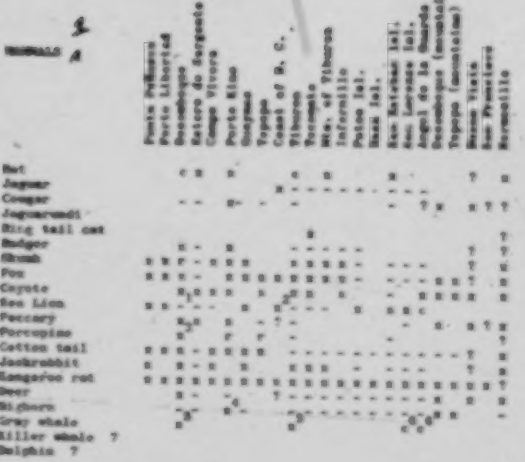
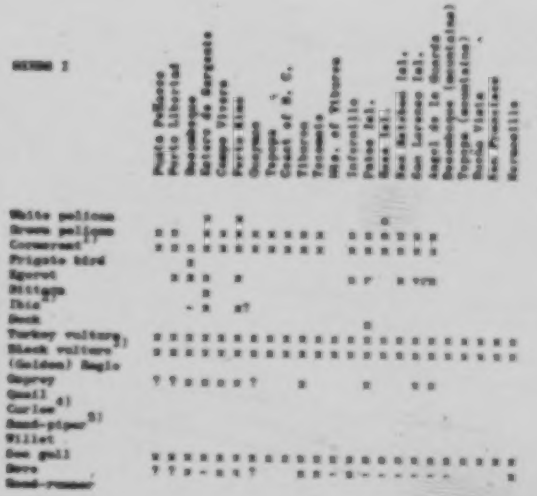


r-rare
c-common
p-present
- absent
?-don't know
1-because on rocks
2-at Pt. Lobos
3-on level ground
4-big mountains near Kino
5-and all coastal esteros
6-deeper esteros, esp. near Satchan
7-in deeper esteros but in hot season rarer near shore



a-nesting
r-rare
vr-very rare

61- all mainland plus as indicated
21- also other esteros
31- nesting?
13- also everywhere along the coast
41- along sea-shore-unspecified
51- as above

[P. 61]
[P. 60 is blank]

1/1 [These Distribution Charts show the distribution of animals in the Seri environment as conceived by the Seris. - See Cat. 116, p 13 B - Analyst.]

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BIRDS II

	Punta Peñasco	Puerto Libertad	Desemboque	Estero Sargento	Campo Vivora	Puerto Kino	Guaymas	Yaqui	Coast of B. C.	Tiburon	Tecomate	Infernillo	Mts. of Tiburon	Patos Isl.	Mano Isl.	San Esteban Isl.	San Lorenzo Isl.	Angel de la Guarda	Desemboque (mountains)	Yaqui (mountains)	Bacoa Vista	San Francisco	Bermejillo
Barn owl			x												x	x	x	x					
Hummingbird	?	?	x	-	x	x	?	x		x		-	-		-	-	-	x					
Woodpecker		x	x		x	?				x	x	-	-		-	-	-	-		?	?		
Swallow																							
Raven				x	x	x		x		x	x	x		-	x	x	?	?					

REPTILES I

	Punta Peñasco	Puerto Libertad	Desemboque	Estero Sargento	Campo Vivora	Puerto Kino	Guaymas	Yaqui	Coast of B. C.	Tiburon	Tecomate	Infernillo	Mts. of Tiburon	Patos Isl.	Mano Isl.	San Esteban Isl.	San Lorenzo Isl.	Angel de la Guarda	Desemboque (mountains)	Yaqui (mountains)	Bacoa Vista	San Francisco	Bermejillo	Hapolos
Horned toad				x	-	x	x			x	x				-	x					x	x	?	
Gridiron-tailed lizard				x	x	-	x				x	x											x	x
Leopard lizard				x	-		x				x	-											x	
Spotted rare runner	?	-	x	?	x	x	?				x	x	x	-	-	?	-	?	?	-				
Race runner			x	x		-	x					-				-x	x	x						
Northern chuckwalla	?	?	x	x	-	-	?				x	x		-		-	-	-						
Chuckwalla																x	x	x						
Northern crested lizard			-	-	-		-				-	-		-		x	x	x						
Gila monster			x	x	?	-	x	?			-	-		-		?	?	x						
Uta [2]	x		x	x	x	x	x	x	x	x	x	x	x	-		x	x	x						
Striped ground uta	x		x	x	x	x	x	x	x	x	x	x	x	-		x	x	x						
Fence lizard			x	x	-	x	x				x	x	x	-		x	x	x						
Ground gecko			?	?	-	x	x	?			x	x		-		?	?	?						
Night lizard			?	?	-	x	x	?			x	-		-		-	-	-						
Side winder		?	?	x		x	x					-		-		-	-	-						
Western diamondback [2]	x		?	x	x	x	x	x	x	x	x	x	x	-		x	x	x						
Coral snake	?	?	?	x	-	x	?				x	x		-		-	-	-						
Gad racer		-	x	x		x				x		-		-		-x	x				x			

1)-mountains back of Desemboque
2)-"found everywhere"
? -rare
x -common

REPTILES II

	Punta Peñasco	Puerto Libertad	Desemboque	Estero Sargento	Campo Vivora	Puerto Kino	Guaymas	Yaqui	Coast of B. C.	Tiburon	Tecomate	Infernillo	Mts. of Tiburon	Patos Isl.	Mano Isl.	San Esteban Isl.	San Lorenzo Isl.	Angel de la Guarda	Desemboque (mountains)	Yaqui (mountains)	Bacoa Vista	San Francisco	Bermejillo
Black whipsnake			x	-		?				-						-	?				x		?
Patch nose snake [2]			x	-		x										-??	?						?
Lyre snake	?		x	x												-	-	-					
Desert tortoise	?		x	x	?	-	x									-	-	x					
Desert toad			x	x	-	x				x	x							x					

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FISHES I

	Ponta Pêlmoço	Porto Libertad	Rosenbergue	Estero Sargento	Campo Vivero	Porto Rico	Guayaba	Topoga	Coast of B. C.	Tiburon	Tarumala	Paton Isl.	Rasa Isl.	San Esteban	San Lorenzo	Angel de la Guarda	Infernillo
Pescada	r	r	r	[1]	-	r				[2]	-	r		r	?		
Mero			r	r	-	r	r			[2]	-	r		?	?		
Pinta	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r	
sardinero		r	?	?						c	c						
Baya		r	r	r	r	r	r			r	r	r	r				
Totuava o)	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r	
Cabrilla	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r	
Sardina			[3]		r												
Cerrina		r	r	r	r	r	r			r	r	-		-			
Anchoveta		r	r	r	r	r	r			r	r	-		-	-	-	[4]
Lisza		r	r	r	r	r	r			r	r	-		-		r	[4]
Palometa		r	r	r	-	r	r			r	r	r	?	?	r	r	
Chano		r	r	-	-	r	r			r	r	r	-?	?			
Hypsoblennius		r	r	r	-					r	-	-		?			
Lenguado	?	r	r	r	r	r	?			r	r	-		-	-5-5m		
Mariosa	r	r	?	r	-	-	r			r	r	r		r	r	r	r
Myrichthys tigrinus	?	?	?	r	r	r	?			r	r	-	?	-		?	r
Sphoeroides annulatus		r	r	r	r	r	?			r	r			?	?		

1)-few
2)-near Alcatraz Rk.
r -rare
c -common
e -everywhere in winter, near in summer
[4]-rare in summer
4)-here largest of its kind
5)-too rocky

FISHES II

	Ponta Pêlmoço	Porto Libertad	Rosenbergue	Estero Sargento	Campo Vivero	Porto Rico	Guayaba	Topoga	Coast of B. C.	Tiburon	Tarumala	Paton Isl.	Rasa Isl.	San Esteban	San Lorenzo	Angel de la Guarda	Infernillo
Gillichthys seta	r	r	r	r	-					r	r	r		?	?		
Scorpaena annarus	r	r	r	r	-					r				r	?		
Malacosteus: zonifer	r	r								r				r	?		
Ophibia sp.																	
Lutjanus argentiventris																	
Paralabrax vivis	r	r	r	r	-	-	?			r	r	r		r	?		
Tuna	found south in the ocean																
Flying fish	in the ocean (hearsay)																
Sting ray	r																
Horned manta	r	r	r	r	r	r	r			r	r	r		r	?	?	
Cornuta	everywhere but stays away from banks																
Pleturoca	as above																
Gato	everywhere in deep waters																
Dogfish	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r
Chato	in all deep waters																
Cowpens	in all deep waters																
Aprox	as above																
S--pfpan (?)	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r

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PLANTS III

	Punta Pelícano	Porto Libertad	Desemboque	Estero de Bargeato	Campo Vivero	Porto Kino	Guaymas	Topolobampo	Coast of B. C.	Tiburon	Tecomate	Infiernillo	Patos Isl.	Bahia Isl.	San Ignacio	San Lorenzo	Angel de la Guarda
Anisocrinum davidsoni		x	c	c	-	-	?			x	x	x		?			
Girella simplicidens		x	x	x	r	-	?			x	x	x		x[4]			
Cuvieden semifer																	
Abudefduf concolius		x	r	x	-	-				x	x	x		?	?		
Cotylis pinniger		x	c	x	-	-	?			x	x	-		x		?	
Paralabrax maculatofasc.		x	c	x	x	-	?			x	x	x		-			

MOLLUSCS I

	Punta Pelícano	Porto Libertad	Desemboque	Estero de Bargeato	Campo Vivero	Porto Kino	Guaymas	Topolobampo	Coast of B. C.	Tiburon	Tecomate	Infiernillo	Patos Isl.	Bahia Isl.	San Ignacio	San Lorenzo	Angel de la Guarda
Octopus bimaculatus		r	r	c	r	●	?			c	c		●		?		?
Trachibranchiata		x	c	?	?					?	?				?		
Ischnochiton magdalenensis	?	x	x	x	x	x				x	x	x	x	x	?	x	? ?
Ischnochiton laevigatus	?	x	x	x	x	x				x	x	x	x	?	x	?	?
Codakia distinguenda	1)	x	x	r	x	x	x	x	x	x	x	x	x	x	x	-	x x
Polirices reclusiana			x	x	x	x	?			x	x	x					
Phallium abbreviatum	?	x	x	x	x	x	?				x	x	x		-	x	?
Phyllonotus erythrostomus			x	-	x						c			-	-	-	?
Chlamys subdudosa		x				?				x	x	x					
Ostrea mesfa		-	r	c	c	c	-			c	●	x	-	-	-		
Laevicardium elatum			x	r	x	x	x			x	●				-	-	
Chione californiensis		?	x	x	Com	x	?			x	-	x	x		x		?
Navicula pacifica		x	r	-	x	-				r	-	-	-	-	-	?	?
Turritella broderipiana		?	x	c	x		Com			x	-	x	-		-	?	?
Crucibulum spinosum			x	x	x	?	?			x	x		x		?		
Cardium consors			x			●							?		-	x	
Turbo fluctuosa			r			●								●	-		
Corithium stercomuscarum		x	c	x	x	x	-			x	x	x	-		?	?	?
Solenosteira polida		x	x	x	x	-				x	x	x			?	?	?
Chione undatella		-	r	x	x	Cc				-	-		-		-		

●-island too small
●-no rock
1)-everywhere except S. Est.
c-common
Cc-most common
r-rare
●-only on east shore
●-turbulent water
●-too rocky

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MOLLUSCS II

	Punta Peñasco	Puerto Libertad	Bocanboque	Estero de Sargento	Campo Vivero	Puerto Kino	Guaymas	Topolo	Coast of B. C.	Tiburon	Tecomate	Infiernillo	Palos Int.	Rasa Isl.	San Esteban	San Lorenzo	Angel de la Guarda
Conus regularis 1)	x	x	x	r	x	-	x	x	x	x	x	x	x	-	4	x	x
Columbella fuscata																	
Tegula rugosa	?	x	x	x	x	-	3			x	x	-	2	x		x	?
Kanfastia funiculata	?	x	x	x	x	x	?					-	2			-	x
Trivia radians			x								x	x	x			x	?
Nerotina luteofasciatus	?	?	x	x	x	?	?			x		-	-	?	?	?	?
Cypraea annettae		x	x	x	x	?	?			x	x		x		3		
Tellina rufescens 1)	x	x	c	x	x	x	x	x	x	x	x	x	-	x	-	?	?
Olivella dama		x	r	-	-	-				x	x	-	-		-		
Crepidula aquosa			x	x	x	x					x	x	x	x	-	x	?
Cardiamera affinis		?	c	x	3		?			x	x	x	-	?	-	?	?
Acmaea dallana		x	x	x	x	-					x	x			r	-	
Isognomon chemnitzianus	x	x	x	x	x	x	x			x	x	x	x		?	x	?
Volsella capax			x	x	x	x				x	x	x	-	3	x	x	x
Pteria peruviana	?	c	r	x	x	r	?			x	c		-	3	-	?	?
Pinna ventricosum		-	Cc	-	-	-	?			x	x	-	-		-		
Nicobe histrionica	?	-	x	x	x	x	?				x	-	-		-	-	?

CRUSTACEA

	Punta Peñasco	Puerto Libertad	Bocanboque	Estero de Sargento	Campo Vivero	Puerto Kino	Guaymas	Topolo	Coast of B. C.	Tiburon	Tecomate	Infiernillo	Palos Int.	Rasa Isl.	San Esteban	San Lorenzo	Angel de la Guarda
Cirripedia 1)	x	x	x	x	x	x	-	x	x	x	x	x	3	x	x	x	x
Azinus vivasi		x	c	x	-					-	3	x	-	4		-	
Leptodius occidentalis		?	x	x	x	3					x	x	-	4		?	?
Spaleophorys schmidtti	x		x		x	3				x	x					x	x
Microphyrus platycoma		x	x	x	-					x	x		x		?		
Petrolistes armatus		?	x	x	-	-	?			x	x				-		
Callinectes arcuatus	?	x	r	x	-	-	?			x	x	-	x		?	?	?
Glyptoxanthus acanthicus		x	r	x	-					x	x	x	-	-	?	?	?
Pilumnus townsendi		x	r	x	-					x	x	x	-	-	?	?	?

1) everywhere except at Kino
2 -in one part of it only
3 -too sandy
4 -too turbulent
5 -less than in Bocanboque

MISCELLANEOUS

	Punta Peñasco	Puerto Libertad	Bocanboque	Estero de Sargento	Campo Vivero	Puerto Kino	Guaymas	Topolo	Coast of B. C.	Tiburon	Tecomate	Infiernillo	Palos Int.	Rasa Isl.	San Esteban	San Lorenzo	Angel de la Guarda
Annelid worm 1)	x	x	x	x	x	x	?	x	x	x	x	x	x	x	?	x	x
Eurythoe		x	c	x	x	-	?			x	x		-		?		?
Holiaster		x	Cc	x	x	-	?			x	x		x		?		
Holothuroides		x	x	x			?			x	x		-		3		
Encope grandis 1)	x	r	x	x	c	x	x	x	x	x	x	x	x		3	x	x
Echinometra vanbrutti	x	r	x	x	4	2	3			x	x						
Asthacos	x	c	x	-	-					x	x		x				
Medusa																	
Porifera		x	c	x	x	?				x	x		-		x		

1) -Bocanboque and everywhere else
2 -too rocky
3 -more than in Bocanboque
4 -no rock

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INSECTS I

	Punta Pájaros	Punta Libertad	Bocachoque	Estero Aeropuerto	Campo Virora	Punta Kino	Guaymas	Tepopa	Coast of B. C.	Tiburon	Tecomate	Infiernillo	Mts. of Tiburon	Palos Int.	Mata Int.	San Esteban Isl.	San Lorenzo Isl.	Angel de la Guarda	Bocachoque (mountains)	Tepopa (mountains)	Bonta Vista	San Francisco	Bermudillo	Bagdad	Campo Utah
Hyperaspsis carolina		r		c						-						-	?				x	x			
Cicindela cartagena col.	x			x							x	x							-						
Cicindela californica Web.	x			x							x	x							-						
Cicindela lemniscata																									
Cicindela californica Beyr.	x			x							x	x							-						
Chlaenius erbus	x	x	x	x	x					x	x	x	x	-		-					x	x			
Calosoma prominens		x	-		x					?						-	?		x		x				
Dasprisa dimidiatipes		r			?					x						-			x			?	?		
Hydrophilus insularis		x			?						-	8				-						x	x		
Chalcolepidius smaragdinus	x	r	?	x	?					r	-	x	x	-		-						?	?	?	
Melanotus cribricollis																									
Horistonotus sp.																									
Haliplus sp.																									
Cymatodera sp. A																									
Cymatodera sp. B																									
Gnatio sp.																									
Polycesta velasco		x			x						x								x		x	x	?		
Hippomelas		x			x						x						-	?	x		x	x	?		
Horaeotes mexicatus		x			x						x						-	?	x		x	x	?		

INSECTS II

	Punta Pájaros	Punta Libertad	Bocachoque	Estero Aeropuerto	Campo Virora	Punta Kino	Guaymas	Tepopa	Coast of B. C.	Tiburon	Tecomate	Infiernillo	Mts. of Tiburon	Palos Int.	Mata Int.	San Esteban Isl.	San Lorenzo Isl.	Angel de la Guarda	Bocachoque (mountains)	Tepopa (mountains)	Bonta Vista	San Francisco	Bermudillo	Bagdad	Campo Utah
Elasdes		x	x	x	x	x				x	x	x	x	-		-					x	x			
Astidius confluens			x													-	-								
Cryptoglossa verrucosa			x													-	-								
Steriphanus punctatus			x		x					x									x		x	x	?		
Edrotes ventricosus			x		x					x						-	?				x	-			
Glyptotus sp.		?	x	*	x	x		x		x	x	x	-			-	?	?	x	x	x	x	x		
Trox suberosus		c		-	x					x						-			x		x				
Diplotaxis knausi		x	x	x	x	x				x	x	x	-			-					x	x			
Cyclocephala longula		c	x		x											x		-			?	-			
Cotalpa consobrina		x		?							-					-					x	x			
Scarabaeidae sp.																									
Anoplognatha dennisana			r	-	x	x				?	?	x	?	-		?			x		?	?			
Ligyrus gibbosus		c	x		x											x		-			?	-			
Strotogma		x		?						-						-					x	x			
Macrima		x	-	x	x		x			x	x	x	-			-	?	?	x	x	x	x	x		
Anoplus prolixus		r	x	x	x	x				?	?	?	x	-	-	?			?		?				
Anoplus sp.																									
Derotrachelus geminatus	x	r	?	x	x	?				x	x	x	?			-	?	?	x		x	?	x	?	
Astaryeus surinamus																									

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INSECTS III

	Punta Pedernal	Punta Libertad	Ensenada	Entero Largarto	Campo Vivero	Punta Elma	Guaymas	Topolobampo	Coast of B. C.	Tiburon	Tecomate	Infernillo	Mts. of Tiburon	Punta Isl.	Kun Isl.	San Esteban Isl.	San Lorenzo Isl.	Angel de la Guarda	Ensenada (mantidae)	Topolobampo (mantidae)	Bonos Viatz	San Francisco	Bermudillo	Angelos	Campo Utah
Acanthoderus pennimaculatis																									
Apatides fortis x		x	c	x	x					x	x	x	x	x	-?	?		x		x	?	x		
Hypogamodorus x			x	?		x				x					-			gr		?	?			
Acheta simplis	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Brunspeolus bilineatus	?	?	?	x						x			x	-	-	-			x						
Ixaera covillei	?	?	x	-	x					x			x	-	-	-			x						
Clematodes larvae		?	x	-	-	x													-						
Periplaneta americana			r	-		x				x				-	-	?			x			-		x	
Arenivaga sp.			r	-		-				-	-	-	-	-	-	?	?	-						?	
Ancosia integra	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	-	?		x	x	x	x	x	x	x
Blaphercomer calcarata			r	-		-				x												x		x	
Stagmomantis limbata			r	-		-				x															
Stagmomantis californica			r	-		x				x															
Mantidae sp.			r	-		x				x						-		x						r	
Rhytidolomia oaxi																									
Lothocorus dolgentei			r	x		-				-						-						x		x	
Emonbus thoracicus			-	-	r					x						-		x		-		x		x	
Triatoma rubida			r	-		x				x						-		x		?		?			
Leptocoma sp.																									
Rhodovilidae sp.																									

INSECTS IV

	Punta Pedernal	Punta Libertad	Ensenada	Entero Largarto	Campo Vivero	Punta Elma	Guaymas	Topolobampo	Coast of B. C.	Tiburon	Tecomate	Infernillo	Mts. of Tiburon	Punta Isl.	Kun Isl.	San Esteban Isl.	San Lorenzo Isl.	Angel de la Guarda	Ensenada (mantidae)	Topolobampo (mantidae)	Bonos Viatz	San Francisco	Bermudillo	Angelos	Campo Utah
Homaloscelis minutus																									
Dicroproctia sp.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	-	-	x	x	x	x	x	x	x	x
Acanpalonia		?	r	x	x					x	x	x	x	-	?					?	?	?			
Scolopocilla reticulata																									
Gryx argyrosoma	x	r	-		x					x	x	x	x	-	?					x	?	?			
Hermetia sp.		r								?				-	-										
Stratiomyidae larva?																									
House-fly (blow)																									
Furcathacliata hagani		r	x		x					x					x							x		
Scotaloca cosgamar		r	x		x					x					x							x		
Chlorion aerarium		r	x		r					x					-					?		x		
Scolia sp.		r	-		?					?					-	?	?			?		?		
Bee	x	x	x	-	x	x	x	x	x	x	x	x	x	-	x	-	x	x	x	x	x	x	x	x	x
Ptiloglossa occidens		x	r	x	x					-	-	x	-	-						?		?		
Emphytilla klugi			x		?					x					-	-		x				?		
Emphytilla hagro		x	x	-	x					x	x	-		x	-			x						
Photeppia																									
Pepsis			r		?					o					x							x		
Ancia sevata																									

[P.67]

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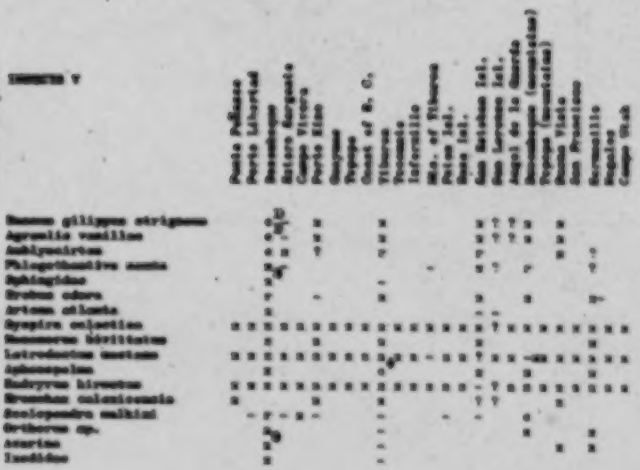
Punta Peñasco
Puerto Libertad
Desemboque
Bahía Kanpanito
Cabo Tiburón
Punta Sierra
Bahía
Tepopa
Coast of S. C.
Tiburón
Tecomate
Infiernillo
Mts. of Tiburón
Pelícano Isl.
Isla Isl.
San Esteban Isl.
San Lorenzo Isl.
Angel de la Guarda
Bahía Kino (Sonoita)
Tepopa (Sonoita)
Punta Tinaja
San Francisco
Bermejillo
Bapalos
Cabo Haro
Ramsey gilippus strigosus
Agrenilis vanillae
Ambiyostirus
Phlegethontius sexta
Sphingidae
Erebus odora
Artemo atlanta
Gyspira colpotias
Nannoarca bivittata
Latrodectus mactans
Aphonopelma
Eudyrrus hirsutus
Brunehan coloniensis
Scolopendra subtini
Orthorus sp.
Acarina
Isoptera

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10: Davis E-5 (1922-ca.1939) 1965 NU31 Seri NU31

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Rafael Ysabel with Gila monster - 1922

[23 before him, has been a friend of the Seris for years. It was his father
15] who brought McGee to Tiburon in 1895, and in many ways they have shown kindness to the Seris.

[22] I hired an auto-truck for fifty dollars to take the necessary people and supplies. These supplies consisted of some fine-tooth combs, needles, thread, one bolt of white muslin, 150-pounds of flour, panoche, saws, nails, harmonicas, little round mirrors, fish twine, hooks, 2-bits and other things.

We left at 6:30 a.m. With us was the driver Ricardo, his friend Rafael Ysabel, son of an ex-governor of Sonora. When we reached Bob's ranch, *El Providencia*, five or more miles out, we added a one-eyed Mexican and Bob's brother.

After a simple dinner at the ranch house we drove across the mouth of the Sonora river, a broad, flat alluvial plain probably four or five miles across. We circled about and turned north, stopping at the edge of a broad shallow bay. The tide was down and the shore was slimy mud and filled at places with sharp-edged clam and oyster shells. There were oyster flats at the edge of the mud, so Roberto and the Mexican waded out and secured enough of them for supper.

[36] During the day we ran close to a Gila monster, a horrid looking black and orange mottled fat lizard who waddled along. Rafael held his head with a rifle, reached down and caught him in back of the head, and held him up. He hissed like a snake and bears a bad reputation.

[33] The country was flat and the road pretty good. Detached mountains we passed during the day and one range called *Siete Carros*, Seven Mountains, with peaks all in one row, reached for fifteen or twenty miles. We passed a few ranches where the people were pumping water from wells or hauling in the old turn-table way with a mule and rawhide buckets. Then we made camp, got everything ready for an early start the next day and turned in.

At dawn three men took the boat with all our traps and groceries and fifteen gallons of fresh water, and Rafael and I walked up to the point to meet it. Louis and the driver and truck returned to the ranch. The weeds and ground were very wet and we came to some sloughs filled with soft ooze. These were impossible to cross, so we went around them and then decided to strike for the ocean side and go along a sand bank. This we did, and when we reached the end we saw the boat waiting for us half a mile or more across a great flat.

[33] The ocean view was grand. A great rock, *Alcatraz Island*, protruded from the sea a short distance out, on which countless cormorants roost and raise their young. Bob often gathers their eggs.

We reached the boat and climbed in and pushed off into deep water. There was no wind and the tide was part way against us, but we rowed, three of us, for many many miles. We landed in a small cove, drew up

[text continues on p.15]

10: Davis E-5 (1922-ca.1939) 1965 NU31 Seri NU31

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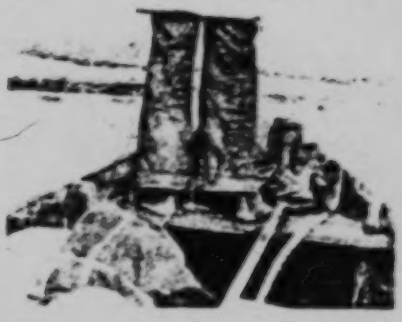
Poised for harpooning sea turtles off Tiburon Island - 1936



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The catch

10: Davis E-5 (1922-ca.1939) 1965 NU31 Seri NU31

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115

Nene Thomson, Pancho Olivares and Roberto Thomson at Tecomate, on north coast, spending whole ribs cast up on the beach. Although thoroughly dried and bleached for years by a semitropic sun, it took their united efforts to elevate these ribs.---E.W.D.

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Roberto Thomson, Santo Blanco and Edward W. Davis

10: Davis E-5 (1922-ca. 1939) 1965 NU31 Seri NU31

114
136

Edward H. Davis with a rattlesnake around his neck - 1922

123 the sail, a very delicate operation in so cranky a boat, and between rowing and sailing, we reached our destination about eight o'clock, all worn out. Before landing, we called and halloed to notify possible strange Seris that we were friends. After a bite we turned in.

In the morning we started for the *carrisal*, as the water hole was called because *carriso* grows there, as we were almost out of water. The nearest *carrisal* was five miles away. We each had a rifle, revolver and extra cartridges, besides two five-gallon cans and a canteen with some water in it. Nene, Bob's brother, had been there and knew the trail, so we all followed him. The most traveled trail from any camp always led to water.

After going a couple of miles we entered the mountains, and from there on the trail was stony and later rocky as we entered the canyon. [13] On the way Rafael caught a light gray diamond-back rattler. He held the head with a stick, reached down and grasped it tightly just in back of the mouth. It rattled viciously and twisted itself about his arm, but to no purpose. I took his photo with it coiled about his neck, and the rattle buzzing on his breast. Later he took my photo, I holding the rattler while his tail was coiled around my neck. Later, we killed it and drew the skin off like a kid glove. When we reached camp I filled the skin with sand to cure it, so I could take it home.

[14] There seemed to be several zones of vegetation as we advanced. First came brush, then *pitahalla*, ironwood and various cacti, then *torote*. In the mountains, *mesquite*, *palo blanco*, *"wild fig"* and several varieties of brush. The roots of a certain variety of brush furnished us with tea, as our coffee had disappeared. This washed and boiled, made a very good drink.

At the latter end of our arduous trip we had to climb over boulders, and then we arrived at a few pools of water in the rocks and a bunch of *carrisos* in their midst. Beneath the *carrisos* the creek bed was as dry as a bone. We climbed up higher, looking for tanks in the rocky bed. We found one tank but it was filled with green algea. In some places there were great caves in the cliffs and everywhere the scenery was rugged and fascinating. The main mountain above us seemed to rise five hundred feet, with very sparse vegetation. We climbed up some very steep places, almost perpendicular, but as we found no more water we returned and filled our cans.

I had brought shaving tools with me, except soap. However, one of the men knew of a certain root that would produce a lather. This was handy and I mascerated the root. Bob put it in my bandanna and by manipulation produced a good suds. With this I reduced a week's growth of whiskers.

On the way we passed several places where burro deer horns had been stuck in the trees and well bleached out.

Bob and the one-eyed Mexican, Oliverria, carried the water, two

[123] gunwales, and then in trying to balance, she would dip the other way.

As we got to the point, the swells were larger and the danger so imminent we stopped the boat in lee of the point nearest Sonora, and Bob and I landed.

Old Blanco had paddled his *balsa* with some of the freight to the Sonora side. The boat put off again, and rode the sea better and it landed all right on Sonora side. In the meantime, several of the women and children, with their loads, had reached the Seri point ready to be ferried across. The boat returned with two Seris paddling. We loaded a lot of Indian junk, Bob and I and several children, the Chief and a woman. Nine in all. We reached the Sonora side, all right.

By this time breakfast had been cooked and we sat down to drink black coffee and eat rice and onions. The wild-looking Seris sat around us watching each mouthful, hungrily. When we finished we gave them all that was left and they cleaned it up.

[230] As we left the Seri point, and as their masters left, the dogs trotted to the water's edge and howled. Bob said that when all had crossed, the dogs would plunge in and swim across the swift current. [136] The water was infested with sharks, so it was possible that some of them would not reach shore. At last everybody got across, dogs and all.

[192] The Indians carried their packs; the men with the shoulder sticks and the women balancing their loads with marvelous dexterity on their heads. Two men packed twenty gallons of water in five-gallon cans.

When we had all our things in the boat, Juan Tomas jumped in with his pack. We were well loaded before, but this made us a little too deeply laden. Nevertheless, we pushed off and raised the sail to take advantage of the wind. We sailed parallel to the shore for a few miles until the waves got too overpowering and the boat had a lot of water in her. The mast was unstepped---a very delicate operation---and we made for the shore after shipping some of the waves.

My heart was in my mouth most of the time as each time the boat rolled, one side almost dipped up a wave. It was a matter of personal safety as well as safety of what few things I had already collected. One olla I had bought was smashed. The waves looked like clear green paint.

We finally landed without mishap and pulled the boat up, but it was so rocky we had great difficulty in walking in our bare feet. Our legs and feet were bare when we were in the boat and mine were badly scalded by the sun.

The Seris had made camp one quarter of a mile down the beach from us, and the old Chief shouldered his pack and strode down to them. We were very thankful.

[225] Soon some of the men came back to borrow the boat to hunt for

123 was black. He then ground it in the frying pan by rolling it with a tin can. When made, the coffee was black and bitter, but they were used to it that way.

At three thirty in the morning we were up from our sand beds and drank coffee. At four we pushed off, towing our balsa on which we lashed our turtle shells, antlers and other things. Our boat rode the waves like a duck.

As we glided by the foot of some mountains we could hear the surf break sullenly. We had the sail up but soon had to resort to the oars as the slight wind died out. Day soon began to grow light. The sea was glassy, reflecting the rosy morning tinge. There was a swell on but the waves were smooth.

136 The cormorants, in threes and fives, began flying to their feeding grounds with swift wings and necks outstretched. Then a few Pelicans drifted idly by on lazy wings. A school of sardines fretted the water near us, chased by a hungry fish from its depths. A few porpoises rose and dived, rose and dived, rose and dived, time after time. At one time eight of them came within twenty feet of us and one dived right under our bow, bouncing the boat up and down.

133 123 Soon we were passing some red volcanic hills, with caves and blow holes in the cliff and sea caves below, in which the sea roared. Giant cactus secured a precarious footing in the crannies of the cliffs. Then a long beach, then *Cerro Prieto*, another red cliff descending to the sea, penetrated with numerous caves and roosting places for cormorants.

123 As we neared Alcatraz *(Pelican)* Island, we saw a fishing boat in the distance. The wind had freshened and was ahead and the waves seemed almost to come in board, but the hollowed tree arose and rarely shipped any water. A boat put off from the fishing boat and was rowed to shore, and as we came up we hailed the crew and grounded our own boat. They had seen us from Alcatraz Hill, and seeing the balsa thought the Seri Indians had stolen a fishing boat and were towing their own boat. Each man had a belt of cartridges and if the Seris had been there instead of us they were going to kill them. Bob knew them from Guaymas.

We pushed off from shore again, and after rowing a half or three quarters of a mile further we beached our boats, cooked dinner and waited for our auto truck. Our provisions were almost gone. We had only enough for one meal left. No meat at all. Water was almost gone. None other for miles.

415 244 242 One of the cherished vessels used by the Seris is an agate chamber pot. It is black from much use. When I saw it, it contained a green slimy mess made from meal of seaweed seeds and the green fat or oil of the turtle. The Seris stick their fingers into the pot and then lick them off. If any is left the dog licks out the pot. No vessel is ever washed; it is licked clean.

123 it from shore by a paddle. A little child in the boat sat still as a
484 mouse. No matter how the boat rocked, it never whimpered or cried. All the children stayed perfectly quiet in the frail crafts, in the very positions in which they were placed.

123 Once the boat approached shore to secure a small octopus for fish
484 bait. One was finally located by Stanley, who could see its eyes
136 shining with a baleful purple light under a large boulder in about
220 eighteen inches of water. The Seri got out and pinned it down with an oar, while Roberto pounded it time and time again with another oar. Even then it escaped in a cloud of sepia which it discharged. Its tentacles were easily a foot in length, and its color was the bottom of the sea. If it once gets a grip on a rock it is practically impossible to tear it loose.

Schools of porpoises played close to the boat each day, curving up to breathe and throw spray and then diving lazily below the surface, frequently gliding like a dark shadow below the waves. Sometimes, in the sheer joy of living, they would leap clear of the water and splash back in a spray of foam.

123 We soon reached the extreme point where it juts from the Sonora
484 shore, landed and set a signal smoke to notify other Seris on the
[208] Island. (A dry *pitahalla* cactus was selected for a black smoke.) No answering signal came. We crossed the narrow channel, the Infernillo, a little over a mile wide, the water like a mill pond, and landed on the sheltered side and unloaded on the stony beach. For miles the beach was covered by windrows of round wave-worn rocks and pebbles of all beautiful colors and sizes mingled with strange shells and seaweed. Here we made camp and stayed overnight.

The Indian canoe landed its cargo of women, children and dogs a little later, and established a camp adjoining. Three little boys were commissioned to secure us some clams and they returned in a while with a pail of clams, one crab and some oysters. These were boiled in salt water, the meat extracted and Pancho Oliverria cooked them in rice for supper. The crab was my especial delicacy.

123 Roberto and Stanley walked off after dinner to hunt in the mountains a few miles back from the coast, and they returned long after dark very weary from carrying, for seven miles, a young burro deer which they had shot. The Indians soon gathered around it chattering volubly, as both they and ourselves had eaten no meat for several days. We gave them nearly three-fourths of it, reserving a hind quarter and some ribs for ourselves. Rafael Feliz and Chico, with skill born of long practice, skinned and unjointed the animal in a very short time, and devoured a good part of their share in a cooking pot a little later, although they had eaten only a little while before. The boys cracked the bones and scraped the marrow, eating it like candy.

[484] At six thirty the next morning, we were crowded in the boats again

123 It was March and the night wind was cold, but we did not dare light
223 a fire, so we hugged our blankets close to us for warmth until Santo Blanco judged the Pelicans were sound asleep. We could hear the waters of the Gulf roaring softly as they broke against the cliffs far below us.

At midnight Santo Blanco lighted his torch and the other Indians [29] did likewise. They all wore rawhide sandals to keep their feet from being cut on the sharp rocks. Santo Blanco was agile as a cat, as he jumped from rock to rock on the steep slope holding his torch over head. Part way down the party split, leaving Santo Blanco, Roberto and myself. I had a flashlight which threw a feeble ray on nearby rocks and then shot off into blackness. The rocks were slippery from [134] droppings of thousands of cormorants, gulls, Pelicans and other sea birds and climbing down rocks on the steep slope and that on a dark night, was risky if not dangerous, for if we slipped or missed our footing, we might roll, bump a few times and drop from a high cliff into the sea.

Santo Blanco was far below us and at last we could hear him clubbing Pelicans over the head and by the time we reached him he had several dead Pelicans spread on the rocks and he was bringing in the last of them near where we had stopped.

There lay five of these great silver gray birds, each boasting a wing spread of ten feet, as against seven feet of the golden eagle. The flashlight picked them out, one by one, with their long necks, long bills, and with pouches on the nether mandibles for temporary storage of their catch. They are very awkward and ungainly as they stand in groups on rocks at the edge of the tide, but when their great pinions are spread in flight over the sea, they are the epitome of grace.

That was a heavy load, over one hundred pounds, for one man to pack up those steep slippery rocks. I suggested that we help Santo Blanco to the top, but Roberto said the Pelicans were covered with lice and it was not advisable, but with Santo a few more or less made no difference. So he tied the birds together and swung them over his shoulders leaving his hands free for climbing. His torch had burned out and our only light was my flashlight to pick out hand and foot holds. At times we would reach down and give him a lift where the rocks were steepest, but for the most part he struggled alone. Sometimes he would find a few steps like a stairway and then he would look for an easy way, using both hands to pull himself up, but there was no easy way. It was a herculean task to climb those slippery rocks and one time the load almost pulled him over backward, but he recovered his balance and finally the crest of the hill was reached and the rest was down hill on an easy trail.

The boys already had a camp fire going near the beach and as soon as Santo deposited his load, they all fell to and began skinning the

[text continues on p. 217]